SISTEMI E MICROSISTEMI

RED – H

INSTRUCTION MANUAL

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REL.	DATE	T.M. Check and Approval

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1 – INTRODUCTION

RED-H is an emergency rescue device for hydraulic lift systems, which allows the car to come back to bottom floor and the car doors opening during black out.
It is supplied by a battery voltage 24Vdc (N°2 batteries 12V 7Ah series connected) and it is easy-fitting to any kind of lift system, new or already existing.

This manual contains the necessary information about the connections, the put on duty and the operation of RED-H, please read it carefully before proceeding to the installation.

2 –GENERAL DESCRIPTION

The device is built in a metal box, and includes:
- *REDH* electronic board (which includes battery-charger, logic circuits and 3-phase inverter);
- n°2 elevator transformers 200VA (primary 18V, secondary 230/400V)
- N°2 batteries 12V 7Ah (mounted separately)

3 – OPERATION PRINCIPIPLE

RED-H detects the main power missing (even a single phase) and after a few seconds it starts the emergency rescue operation that is carried on as follow:
- Control panel supply, which usually comes directly from the mains, is insulated.
- After 2 seconds, the 3-phase inverter turns on and, through the elevator transformer, reproduces the 3-phase voltage 3~230/400V 50Hz to supply the primary winding of the control panel transformer, and the single-phase voltage 230V 50Hz to supply the car light, so that it lights on during rescue operation.
- A call to the bottom floor is made.
- The same control panel circuits active in normal operation make the car to go down, stop at bottom floor and open the automatic door.
- RED-H ends the rescue operation after 20 seconds from stop at floor, to allow the easy getting out of people from the car; when the operation ends, the lift system returns in the normal condition, as it is when mains supply is on.

A new emergency operation is possible only when the mains supply has first switched on, then switched off again.

4 – INSTALLATION

RED-H can be easily wall-mounted preferably as close as possible to the control panel, this will help in order to take advantage of the pre-wired cables and have the shortest connections.
The electrical connections must carried out with the Main Power Switch and Car Light Switch OFF, following the instructions below:

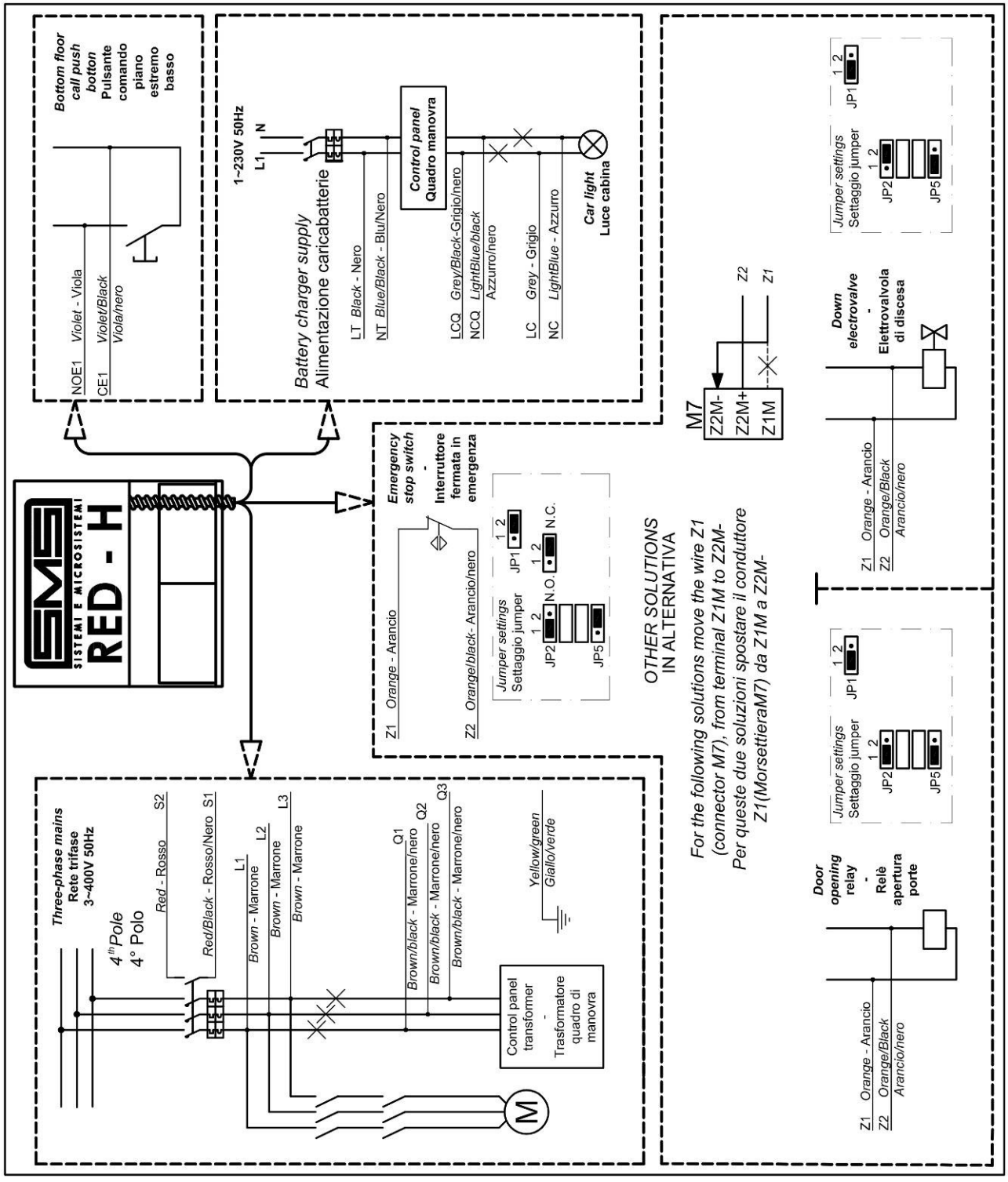
RED-H in its STANDARD version is designed for THREE-PHASE 400V input / output voltage.

- If you need a **THREE-PHASE 230V** voltage, please modify the connections to the transformersT1-T2 as shown in the paragraph 7, page 5.
- If you need a **SINGLE-PHASE 400V OUTPUT** voltage, please modify the connections to the transformers T1-T2 and connect RED-H as shown in the paragraph 8, page 6.
- If RED-H is installed in a lift with **SINGLE-PHASE 230V INPUT** voltage, please modify the connections to the transformers T1-T2, set up and connect RED-H as shown in the paragraph 9, page 7 (option available with the R10 (or later) software release).

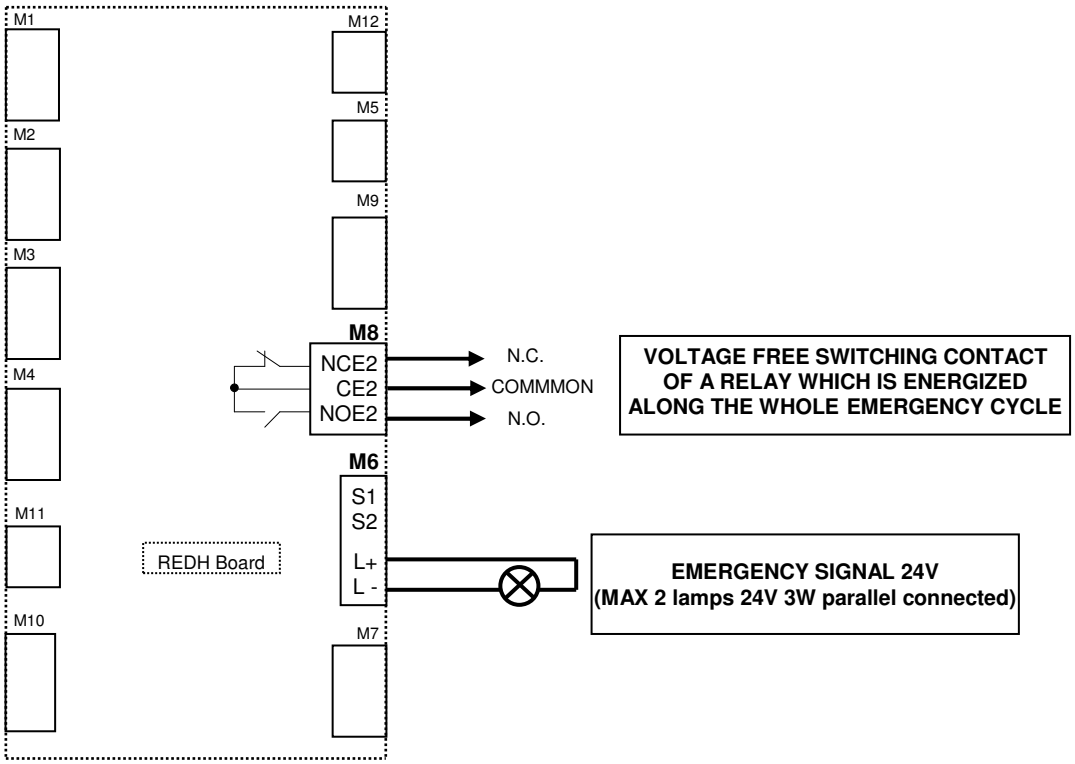
- Cut off the operation transformer supply, connecting the wires coming from the mains to the terminals L1-L2-L3 (**BROWN** wires) and the operation transformer supply to the terminals Q1-Q2-Q3 (**BROWN**/**BLACK** wires). In case of SINGLE-PHASE transformer, connect Q1 and Q3, and do not connect Q2.
- Connect the 1~230V 50Hz battery-charger supply to terminals LT – NT (**BLACK-BLUE**/**BLACK** wires).
- Cut off the supply for the car light, connecting the wires coming from the control panel to the terminals LCQ-NCQ (inputs, **GRAY**/**BLACK-LIGHT BLUE**/**BLACK** wires) and the car light to the outputs LC-NC (**GRAY**/**LIGHT BLUE** wires), respecting the connection PHASE on L and NEUTRAL on N.
- Connect the 4th pole of the Main Power Switch into the machine room to terminals S1-S2 (**RED-RED**/**BLACK** wires). If the 4th pole is open the emergency mustn't operate.
- On the terminals CE1, NOE1 there is a N.O. contact of the KE relay, which stays energized along the whole emergency cycle. This contact may be used to make the emergency call or, if needed, to by-pass the phase control device contact
  If you need a N.C. contact (as for example, to cut off the call button common), on the REDH board (terminal board M9) move the wire connected to NOE1 to NCE1.

- The terminals Z1 and Z2 are provided for connecting the emergency end input, and there are 3 possible choices:
  1) you can use an added stop switch, which operates only in emergency at bottom floor, to be connected directly to terminals Z1 and Z2
     (set JP1 in pos. 2, JP5 in pos. 2 and JP2 in pos. 1 if N.O. switch, or in pos. 2 if N.C. switch).
  2) you can use a control panel voltage which means the emergency car run, as the downward valve coil supply: in this case you have to move the wire connected to the terminal Z1M to the terminal Z2M- in the REDH board and connect the wires Z1 and Z2 (**ORANGE-ORANGE/BLACK**) in parallel with the valve coil;
     (set JP1 in position 1, JP5 in position 1 and JP2 in position 2).
  3) you can use a control panel voltage which means the car door opening at the end of emergency run, as the door open relay coil supply:
     in this case you have to move the wire connected to the terminal Z1M to the terminal Z2M- in the REDH board and connect the wires Z1 and Z2 (**ORANGE-ORANGE/BLACK**) in parallel with the door open relay coil; (set JP1 in position1, JP5 in position 1 and JP2 in position 1).

5 – WIRING DIAGRAM

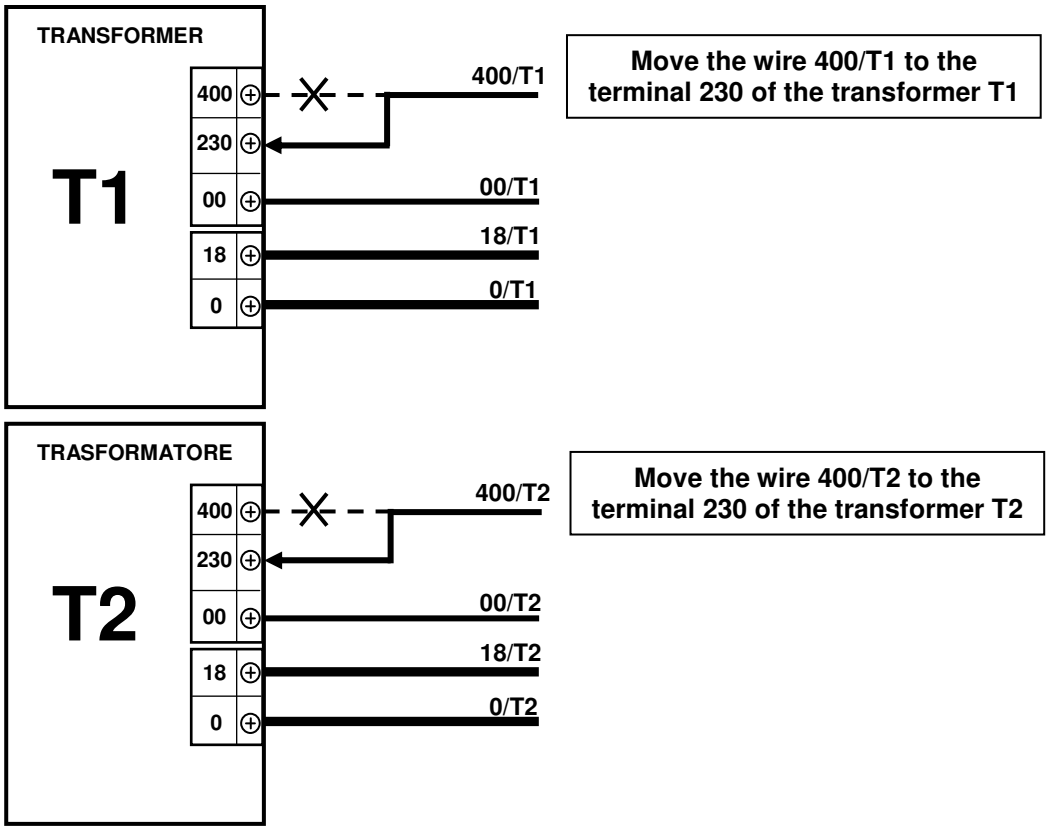


6 – OPTIONAL WIRING AVAILABLE ON THE BOARD



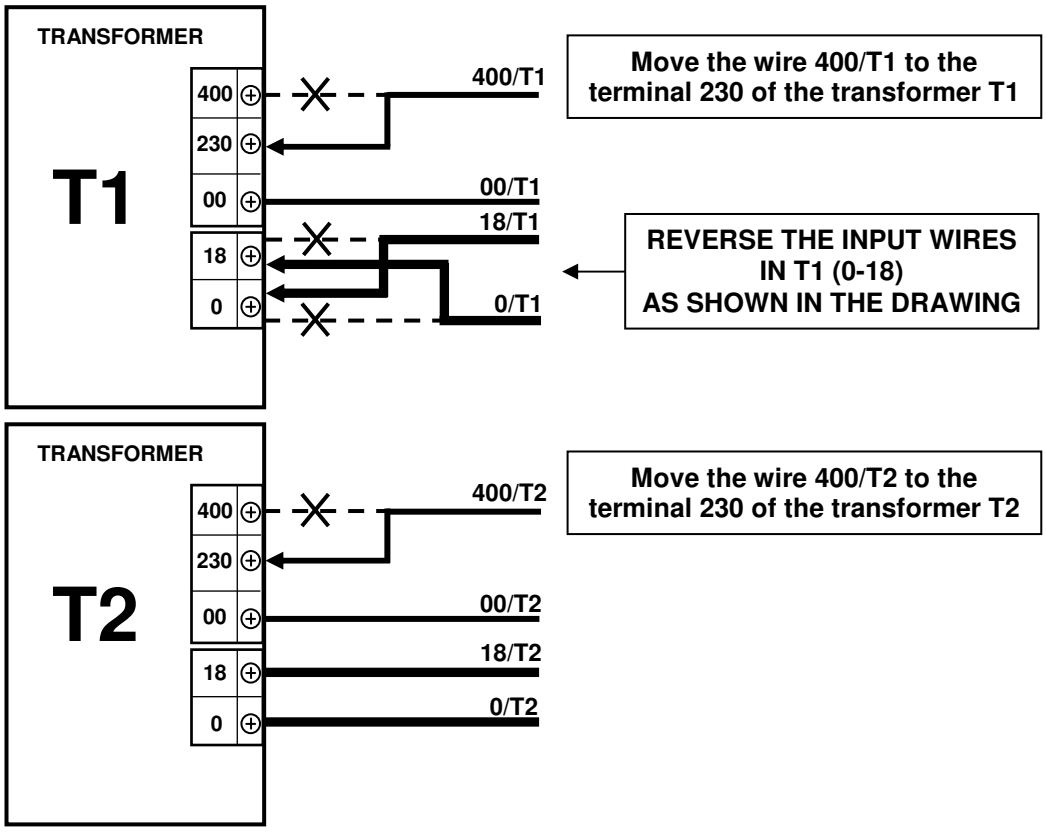
7 – CONNECTING TO GET 230V THREE-PHASE OUTPUT

MAKE THE CHANGES INSIDE THE DEVICE, AS FOLLOWS:

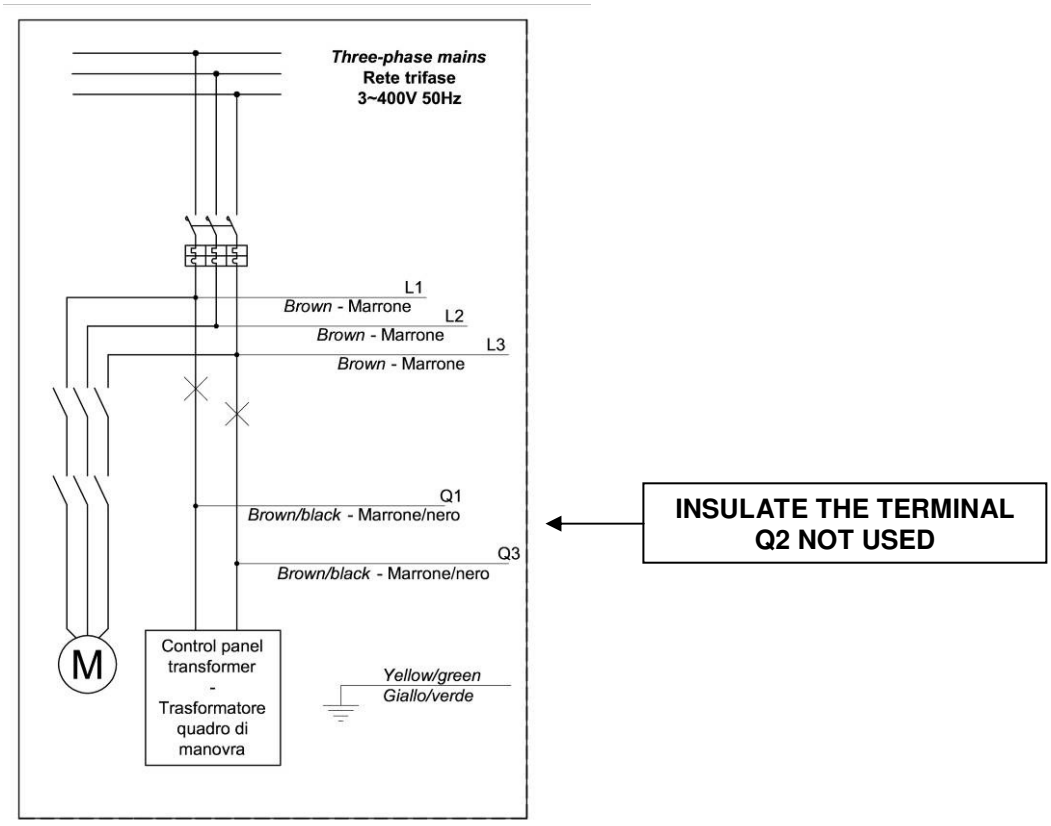


8 – CONNECTING TO GET 400V SINGLE-PHASE OUTPUT

MAKE THE CHANGES INSIDE THE DEVICE, AS FOLLOWS:



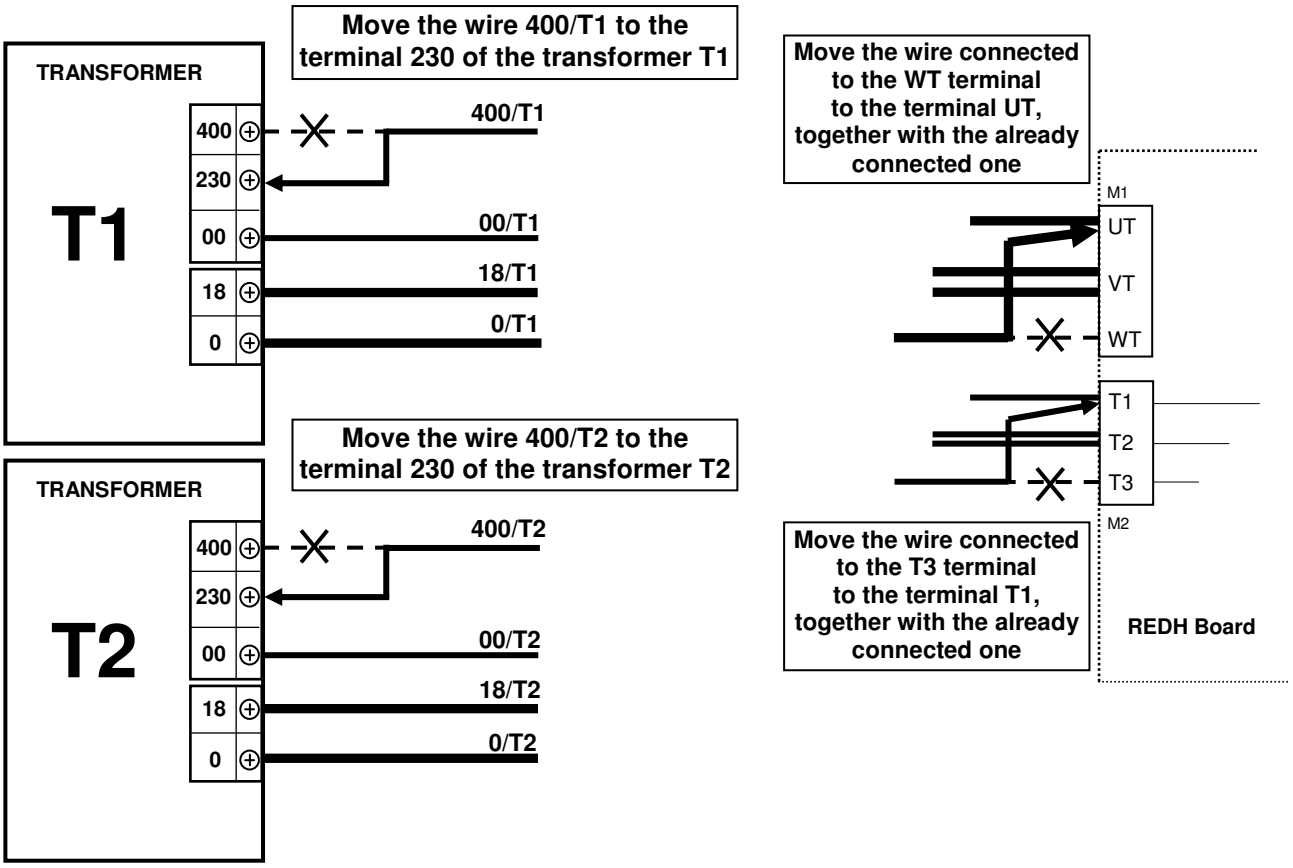
CONNECTION OF THE OPERATION TRANSFORMER



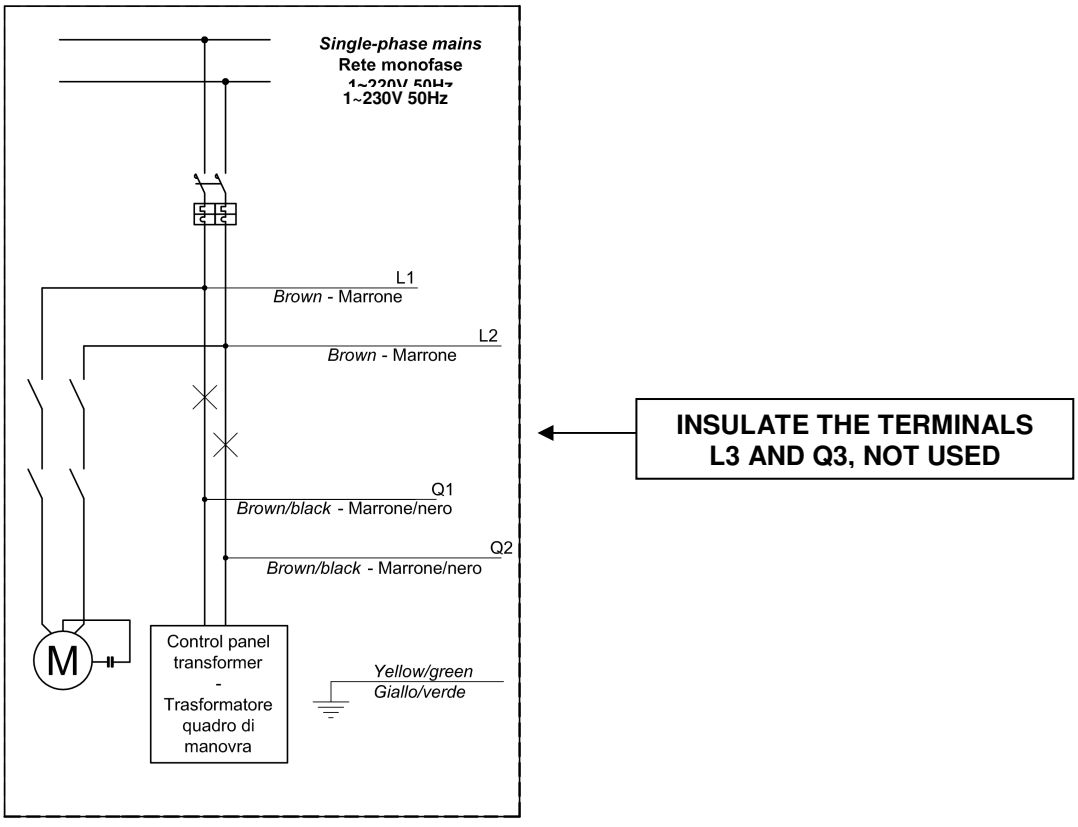
9 – CONNECTING TO GET 230V SINGLE-PHASE INPUT/OUTPUT
(OPTION AVAILABLE WITH THE R10 (OR LATER) SOFTWARE RELEASE)

MAKE THE CHANGES INSIDE THE DEVICE, AS FOLLOWS:

Set JP4 in position 1



CONNECTION OF THE OPERATION TRANSFORMER



10 – FINAL TEST AND INSPECTION

Switch on the Mains Supply and Car Light Supply, then check that the
lift is working properly, that the car light turns on and verify on the REDH board the following Led status:

- 4P ON: 4th pole closed
- DLA flashing slow: means the mains supply is on
- DLB ON: board ready for emergency operation

Choose the end command type through the JP1, JP5 and JP2 jumpers (see Par.5 – WIRING DIAGRAM) and check the operation through the Led ZF (type N.C. opens at floor, type N.O. closes at floor).

Now test the emergency operation step by step as follows:

- Make a call, let the car start and switch off the Main Switch and Car Light Switch when the car is out-floor.
- Make a bridge between terminals S1-S2, as with the 4th pole open the lift cannot work in emergency).

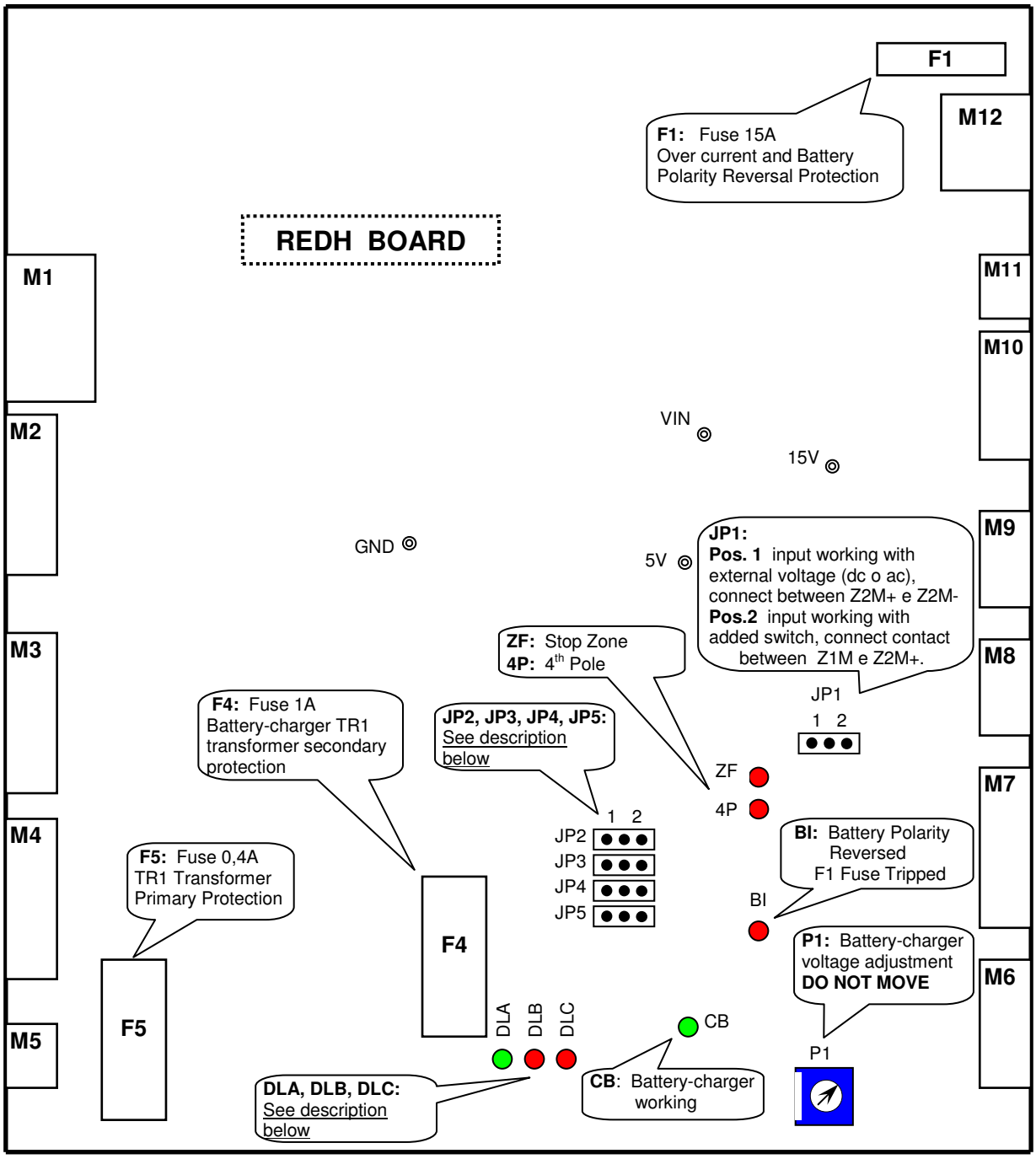
Led DLA lights on steady to indicate the mains supply is off.

After a few seconds the rescue operation starts, and RED-H performs the following sequence:

a) Turn off the Led DLB (RED-H ready to emergency operation).
b) Makes the Led DLA flashing fast to indicate “emergency working”.
c) Turns on the Led DLC (RED-H in emergency).
d) Energizes the relays K1, K2, K3 (which cut off all the 3 phases of the mains supply), LC (to enable the car light switch) and KE.
e) Energizes the relays RUT, RVT e RWT and turns the 3-phase inverter on, so the control panel is supplied again.
f) When the car reaches the stop zone, RED-H waits for 20 seconds to allow the car door opening.
g) After this time, turns the 3-phase inverter off and de-energizes the relays RUT, RVT and RWT.
h) Then de-energizes K1, K2, K3, the lift system returns in the normal condition, as it is when mains supply is on.
i) Turns both Leds DLB and DLC on (the emergency cycle is now ended).

Once that the 3-phase mains is back, Led DLC turns off, Led DLB turns on and Led DLA flashes slow to indicate the Mains Supply is ON.

11 – REDH BOARD LAYOUT



Jumpers	Description	
JP2	POS 1: Stop Switch contact type N.O.	POS 2: Stop Switch contact type N.C.
JP3	POS 1: Battery Voltage compensation DISABLED	POS 2: Battery Voltage compensation ENABLED
JP4	POS 1: Input MAINS Voltage: SINGLE-PHASE	POS 2: Input MAINS Voltage: THREE-PHASE
JP5	POS 1: Emergency End Command from DOWN VALVE or DOOR OPEN RELAY	POS 2: Emergency End Command from ADDED STOP SWITCH

Led DLA lights ON steady when mains supply is OFF, flashes slow when mains supply is ON, and flashes fast during rescue operation.

Led DLC	Led DLB		Description	
⊗	⊗		Emergency NOY READY	**Legenda:** ⊗ = Led OFF ● = Led ON ✸ = Led FLASHING
⊗	●		Emergency READY	
●	⊗		Emergency WORKING	
●	●		Emergency ENDED	
✸	⊗		Over Current	
✸	●		Over Load	
✸	✸		Maximum operating time expired	
⊗	✸		Battery run down or voltage out of range	

12 – TECHNICAL FEATURES

BATTERIES: N° 2 Batteries 12V 7Ah (24V)

REDH BOARD:

Battery-charger
- Supply Voltage: 1~230Vac 50Hz +8/-15%.

3-Phase Inverter
- 3-Phase Output Voltage: 18Vac (RMS Value).
- Output Frequency: 50Hz.
- Maximum Current: 15A (referring to the 24Vdc input).

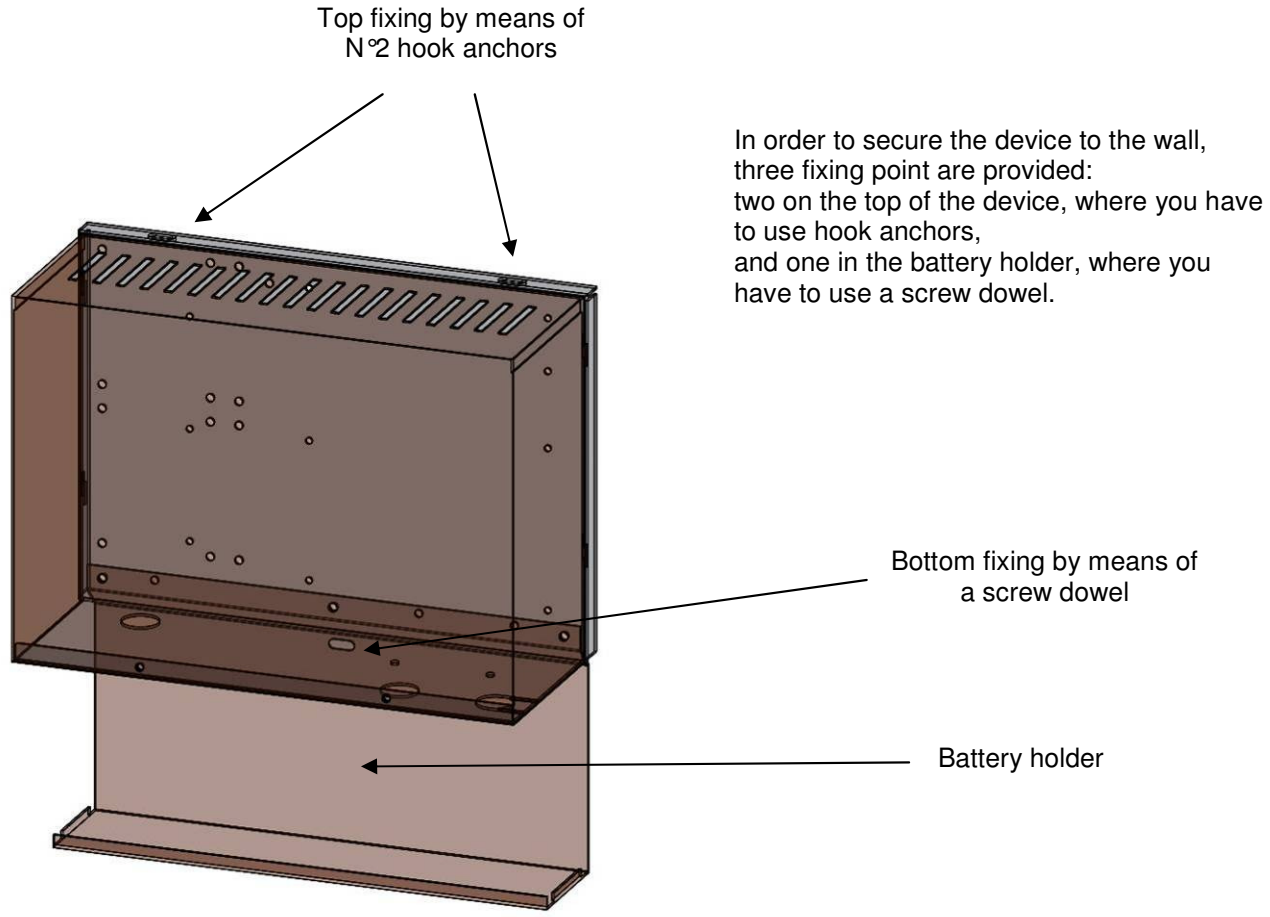
Hardware Protections:
- Fuse F1 15 A rapid 5x20mm, against over current or battery polarity reversal
- PTC, to protect against short circuit the output L+–L- (emergency lamp 24Vdc 250mA MAX 2 lamps 24V 3W parallel connected).

Software Protections:
- Current limit (peak) absorbed from batteries: 20A
- Check on 24V: Batteries run-down at 20V, over charged at 32V
- Maximum emergency operating time: 2 minutes.

EMERGENCY TRANSFORMERS:
- N° 2 Single-phase Transformers: Power 200VA (each one) – Primary: 0-18V – Secondary: 0-230-400V

DIMENSIONS AND WEIGHT:
Width : 320 mm, Height: 365 mm, Depth: 135 mm, Weight: 10 Kg

FRAME FIXING INSTRUCTIONS


Top fixing by means of
N°2 hook anchors
In order to secure the device to the wall,
three fixing point are provided:
two on the top of the device, where you have
to use hook anchors,
and one in the battery holder, where you
have to use a screw dowel.
Bottom fixing by means of
a screw dowel
Battery holder

For further information please contact:

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